

CLASSIFICATION SECRET

REPORT

CD NO. ST-74

DATE OF
INFORMATION 1948

DATE DIST. *8* Aug 1950 .

NO. OF PAGES 2

DATE
PUBLISHED Apr 1948

• SUPPLEMENT TO
REPORT NO.

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SOURCE Vestnik Akademii Meditsinskikh Nauk SSR, No 2, 1948.

EXPEDITIONS FOR THE STUDY OF
OMSK EPIDEMIC HEMORRHAGIC FEVER

During the past few years, the Institute of Neurology has activated an expedition for the study of Omsk hemorrhagic fever (OH), a new infectious disease, of unknown etiology, attacking man in the Central Asiatic regions of the USSR.

As early as 1944, members of the Academy of Medical Sciences USSR and the then independent Primorskaya Army in Crimea were conducting studies on Crimean hemorrhagic fever in an attempt to define the immunological, etiological, epidemiological, and serological characteristics of this infection. Results of these studies were published in 1945, in Crimean Hemorrhagic Fever, and in 1947, in the series Medical News and the volume Virus Diseases.

In 1946, an expedition was sent into the Omsk region to make a study of an epidemic disease whose characteristics were very similar to those of Crimean hemorrhagic fever. The absence of the tick *Hyalomma marginatum*, carrier of Crimean hemorrhagic fever, in the fauna of Omsk Oblast made studies difficult. The studies were carried out under the supervision of Prof R. M. Akhremovich and several members of the Omsk Medical Institute including G. A. Sizemova, Yu. V. Veselova, V. P. Konstantinov, I. S. Novitskiy, A. A. Fedyunshin, entomologist G. I. Netskiy, and others. No definite results were obtained by this expedition, with the result that in 1947 the Omsk Oblast Public Health Department of the Ministry of Public Health USSR and the Academy of Medical Sciences organized a special expedition to study OL.

This expedition was placed under the supervision of Prof M. P. Chumakov, Laureate of the Stalin Prize, and included the following members: Prof A. F. Bilibin, Yu. S. Kleyn, neuropathologist Dr. N. V. Sorokina, virusologist and Scientific Associate A. P. Belyayeva, N. S. Slavina, A. V. Gagarina, and Laboratory technicians O. A. Arapova and K. D. Vinogradova. In addition, workers were recruited from clinics of medical institutes, the Oblast Institute of Microbiology, malarial stations, and the Agricultrual Institute. The expedition consisted of a total of 50 members. The virusological group, which was also under the supervision of Prof M. P. Chumakov, was divided into two clinical groups headed by Prof A. Bilibin and Prof R. M. Akhremovich. Three other groups contained within the expedition included the parasitological groups,

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consisting of Prof A. V. Fed'yushin and entomologist G. I. Netskiy; the epidemiological group headed by Docent M. V. Los' and the pathologoanatomical group under Prof I. S. Novitskiy.

In addition to research conducted by the expedition, M. P. Chumakov and Dr A. P. Belyayeva conducted laboratory experiments in their laboratory at the Institute of Neurology, Academy of Medical Sciences USSR, to determine the effects of filtrates obtained from human poliomyelitic victims on monkeys. Experiments on immunity were conducted on monkeys at the Sukhumi Biological Station, an affiliate of the Academy of Medical Sciences USSR by Dr S. S. Korshunova of the Institute of Virology, M. K. Voroshilova, and L. I. Mart'yanova.

In 1945 and 1946, associates of the Omsk Institute of Microbiology and Tularemia Station, including A. A. Gavrilovskaya, Ye. D. Kushnir, and others, conducted detailed studies to determine the microbe agent in the etiology of OL. The steppe tick *Dermacentor pictus* was found to contain OL virus, and thus might be the source of infection in humans. It was possible to determine a method for serodiagnosis in isolated cases of OL.

As a result of data collected by the Chumakov Expedition it was possible to make the following statements:

1. The causative agent of OL was found to be a filterable virus, present in the blood of patients and pathogenic to many laboratory animals. The etiological role of this virus, which is passive on animals, has been defined, in view of the regularity of its detection in patients, the presence of specific antibodies against this virus in RSK (complement fixation reaction) and RN [sic] in the blood of people previously affected by this disease, and finally, in view of the identical clinical aspects of naturally developed infections of OL and accidental laboratory infections occasioned after working with this virus.
2. Valuable materials were collected on the clinical, laboratory, pathomorphological, and epidemiological characteristics of OL.
3. Steppe ticks *Dermacentor pictus*, collected in the OL endemic regions contained virus and hence may be carriers.
4. The development of an immunity to OL in those vaccinated with killed virus established the possibility of practical use of vaccination in combating this fever.
5. In tests on monkeys, mice and other animals, it was shown that there was an absence of crossed immunological reactions between OL and Crimean hemorrhagic fever as well as an absence of etiological independence of each of these infections, which in clinical-epidemiological relationship appeared only similar but not analogous to each other. On the basis of experiments with crossed immunity on guinea pigs and as a result of regular morphological studies it was possible to differentiate the OL virus from the filtered, rickettsial type of Q fever, or the so-called atypical virus pneumonia.
6. The possibility of practical serodiagnosis of individual cases of OL and those suspected of OL illnesses was established by means of reaction of uniting the complement and reaction due to neutralizing the virus with specific serums.

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